

## CLAIMS

What is claimed is:

1. A method of repairing scratches in digital images, the method comprising:
  - calculating a brightness difference between a selected pixel and one of neighboring  
5 pixels surrounding the selected pixel;
  - counting the number of abnormal pixels among the neighboring pixels;
  - designating as particular pixels the selected pixels surrounded by the abnormal pixels,  
wherein the number of abnormal pixels is more than a predetermined value;
  - dividing an area surrounding each particular pixel into a plurality of blocks, and  
10 calculating a brightness difference between the blocks;
  - finding out scratch pixels from the particular pixels based on brightness difference  
between blocks; and
  - subdividing and filling up an area surrounded by scratch pixels.
2. The method of claim 1, wherein a neighboring pixel is an abnormal pixel when an  
15 absolute value of the brightness difference between the neighboring pixel and its  
corresponding selected pixel is greater than an abnormal standard.
3. The method of claim 1, wherein the particular pixels include scratch pixels and edge  
pixels.
4. The method of claim 1, wherein the area surrounding each particular pixel is divided  
20 into 4 blocks.
5. The method of claim 1, wherein the area surrounding each particular pixel is divided  
into 3 blocks.

6. The method of claim 1, wherein the area surrounding each particular pixel is divided into 8 blocks.

7. The method of claim 1, wherein the step of calculating brightness difference between the blocks includes estimating a mean square error of each block which has a plurality of  
5 pixels, and calculating the difference between the mean square errors.

8. The method of claim 7, wherein if the number of blocks is 4, then the difference between the mean square errors is obtained according to the following expression:

$$\text{Dif} = \text{MaxVar} - \text{Mid1Var} - \text{Mid2Var} + \text{MinVar},$$

wherein Dif is a difference of the mean square errors, MaxVar is a maximum mean square  
10 error, MinVar is a minimum mean square error, and Mid1Var and Mid2Var are middles among the four mean square error values.

9. The method of claim 7, wherein if the number of blocks is 3, then the difference between the mean square errors is obtained according to the following expression:

$$\text{Dif} = \text{MaxVar} - 2\text{MidVar} + \text{MinVar},$$

15 wherein Dif is a difference of the mean square errors, MaxVar is a maximum mean square error, MinVar is a minimum mean square error, and MidVar is a middle among the three mean square error values.

10. The method of claim 1, wherein at the step of finding out scratch pixels from the particular pixels based on brightness difference between blocks, if the particular pixel has a  
20 Dif smaller than a difference standard, then the particular pixel is a scratch pixel, otherwise the particular pixel is an edge pixel.